REMARKS

Claims 11-14, 16-22, 59, and 65-70 have been amended. Claims 71-73 have been added. Claim 64 is herein cancelled. Claims 1-10, 23-58, and 60-63 were previously withdrawn. Upon entry of this paper, claims 11-22, 59, and 65-73 will be pending and under consideration

Support for the amendments to the claims can be found in the claims, specification, and figures as originally filed, and in the specification at least at page 6, lines 6-28; page 17, line 13 to page 19, line 8; and page 27, line 7 to page 28, line 24.

Rejection Under 35 U.S.C. § 102(b)

Claims 11 and 13 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,299,648 to Ciszek *et al* ("Ciszek"); claim 11 was rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,334,948 to Berkman *et al* ("Berkman"); claims 11, 12, 16, 19 and 22 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,861,416 to Morrison ("Morrison").

Claim 11 recites:

> An apparatus for forming a crystalline ribbon, comprising:
>
> a crucible including:
>
> a crucible body having a substantially flat top surface supporting substantially all of a melt of a source material for forming the crystalline ribbon; and
>
> a pair of side walls extending downward from opposing edges of the top surface, the edges retaining the melt by capillary attachment to the top surface of the crucible.

Ciszek, Berkman, and Morrison all fail to teach or suggest the structural limitations of this claim, including a crucible having a crucible body with a substantially flat top surface supporting substantially all of the melt of the source material, and a pair of side walls extending

downward from opposing edges of the top surface, the edges retaining the melt by capillary attachment to the top surface of the crucible.

Ciszek shows a shaping die 9 that has melt 7 on top of, inside, and around the die. The body of the die includes a deep well for retaining a small portion of the melt. The top surface of the die is not substantially flat. Instead, the well in the die has a hemispherical shape. Further, the top surface does not support substantially all of the melt. Instead, the majority of the melt is contained by the melt container 5. Still further, the die does not include a pair of side walls extending downward (e.g., away from the melt surface) from opposing edges of the top surface. Instead, the side wall extend upward (e.g., toward the melt surface). Portions 15 and 17 of the shaping die 9 extend above the melt level. The height above the melt level is responsible for forming the raised menisci. In contrast, the crucible claimed does not extend above the melt surface. As recited in claim 11, a substantially flat top surface supports substantially all of the melt.

Berkman shows a die 14 that draws liquid melt though its central core. The die 14 does not have a flat top surface. Instead, the die includes a series of protuberances extending upward from the top surface. The die 14 does not use the top surface to support substantially all of the melt. Indeed, the melt is drawn through a bore 34 in the die body to form a column of liquid, and none of the melt forming the ribbon resides on the top surface of the die 14. The melt is inside the bore 34 of the die 14. Further, the die 14 does not include a pair of side walls extending downward from opposing edges of the top surface, and the edges of the top surface do not retain the melt by capillary attachment to the top surface. Instead, the die 14 include a bore 34 extending through the die body. The bore 34 draws liquid melt through the die body, but the top surface of the die 14 or the bore 34 do not retain the melt by capillary attachment to the top surface.

Morrison shows a tray 88 connecting deeper containers. Much like Ciszek, the tray 88 has melt on top of, beside, and below its surface. The tray 88 does not support substantially all of the melt. Instead, the majority of the melt is contained by the side containers. The tray 88 is not substantially flat. Filament guides 94, 96 extend from the top surface of the tray 88. Molten

material in the tray is connected to molten material in the deeper containers. Therefore, Morrison does not include a pair of side walls extending downward from opposing edges of the top surface, the edges retaining the melt by capillary attachment to the top surface of the crucible. Indeed, the melt is retained by the side walls of the container 92, not by the tray 88. It is the container 92 which is the apparatus for forming a crystalline ribbon, not the tray 88. Tray 88 is used to confine convection currents to the deeper wells. Tray 88 does not include edges to retain the melt by capillary attachment. It cannot because to confine the convection currents to the deeper wells the molten material in the tray is connected to the molten material in the deep side containers.

For the reasons stated above, Applicant believes that Ciszek, Berkman, and Morrison all fail to anticipate the claimed invention under 35 U.S.C. §102(b). Ciszek, Berkman, and Morrison fail to teach a crucible having a crucible body with a substantially flat top surface supporting substantially all of the melt of the source material, and a pair of side walls extending downward from opposing edges of the top surface, the edges retaining the melt by capillary attachment to the top surface of the crucible. Because Ciszek, Berkman, and Morrison fail to teach or suggest each and every element of claim 11, either implicitly or explicitly, Applicant respectfully requests that the rejection under 35 U.S.C. §102(b) be reconsidered and withdrawn. Furthermore, Applicant respectfully submits that claims 12-22 are allowable as depending from base claim 11.

Rejection Under 35 U.S.C. § 103(a)

Claims 13-15, 18, 20-21 and 64-70 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Morrison in view of International Patent Publication No. 01/04388 to Janoch et al ("Janoch"); claim 17 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Morrison in view of Berkman; and claim 59 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Morrison in view of U.S. Patent No. 4,402,786 to Little ("Little").

For the reasons stated above, Morrison fails to teach a crucible having a crucible body with a substantially flat top surface supporting substantially all of the melt of the source material,

and a pair of side walls extending downward from opposing edges of the top surface, the edges retaining the melt by capillary attachment to the top surface of the crucible. Janoch and Berkman do not correct this deficiency. Because the combination of references does not teach or suggest all of the elements of claim 11, Applicant respectfully submits that claims 13-15, 17, 18, and 20-21 are allowable as depending from allowable base claim 11. Applicant requests that the Examiner withdraw the rejection under 35 U.S.C. § 103 against claims 13-15, 17, 18, and 20-21.

Claim 59, as amended, requires a crucible having a crucible body with a substantially flat top surface supporting substantially all of the melt of the source material, and a pair of side walls extending downward from opposing edges of the top surface, the edges retaining the melt by capillary attachment to the top surface of the crucible. As stated above, Morrison fails to teach or suggest these limitations, and Little does not remedy this deficiency. Because the combination of references does not teach or suggest all of the elements of claim 59, Applicant respectfully submits that claim 59 is allowable, and requests that the rejection under 35 U.S.C. § 103 be withdrawn.

Claim 64 has been cancelled, and the rejection is now moot.

Claims 65-70, as amended, and new claim 73, require a crucible having a crucible body with a substantially flat top surface supporting substantially all of the melt of the source material, and a pair of side walls extending downward from opposing edges of the top surface, the edges retaining the melt by capillary attachment to the top surface of the crucible. As stated above, Morrison fails to teach or suggest these limitations, and Janoch does not remedy this deficiency. Because the combination of references does not teach or suggest all of the elements of claims 65-70, Applicant respectfully submits that claims 65-70 are allowable, and requests that the rejection under 35 U.S.C. § 103 be withdrawn.

New claims

New claims 71 and 72 require a crucible having a crucible body with a substantially flat top surface supporting substantially all of the melt of the source material, and a pair of side walls

extending downward from opposing edges of the top surface, the edges retaining the melt by capillary attachment to the top surface of the crucible. As stated above, Ciszek, Berkman, and Morrison all fail to teach or suggest these structural limitations. Applicant respectfully submit that new claims 71 and 72 are allowable.

CONCLUSION

In view of the foregoing, Applicant respectfully submits that the claims are in condition for allowance and requests early favorable action. If the Examiner believes a telephonic interview would expedite the prosecution of the present application, the Examiner is welcome to contact Applicant's attorney at the number below.

Respectfully submitted,

Date: May 1, 2007
Reg. No. 56,471

Scott K. Witonsky
Attorney for Applicant
Proskauer Rose LLP
One International Place
Boston, MA 02110-2600

Tel. No.: (617) 526-9717
Fax No.: (617) 526-9899